

## Major Course Requirements

A minimum of 100 hours (50 upper-division hours)

### ► Required Core Courses (40 hours):

BIOL 111+12+13	Biological Foundations I,II,III	5+5+5
BIOL 221+ 222	Intro to Research Methods I,II	2+2
BIOL 233	Ecology	4
BIOL 320	Cellular and Molecular Biology	4
BIOL 348	Systems Physiology	5
BIOL 354	Genetics	4
BIOL 396	Science Seminar	.5
BIOL 397	Biology Seminar	.5
BIOL 450	Philosophy of Origins	3

### ► Required Core Electives (21 hours):

At least 21 hours from the following: 21

BIOL 323	Vertebrate Biology	4
BIOL 325	Flowering Plants	3
BIOL 328	Animal Behavior	4
BIOL 331	Marine Biology	4
BIOL 338	Field Biology	3
BIOL 366	Medical Microbiology	5
BIOL 412	Research in Biology	1-2
BIOL 419	Developmental Biology	3
BIOL 422	Advanced Human Anatomy	4
BIOL 426	Histology	5
BIOL 430	Neuroscience	4
BIOL 469	Immunology	4
BIOT 345	Biotechnology I	3
CHEM 481	Biochemistry I	4
ENVR 360+L	Conservation Biology + Lab	

### ► Required Cognate Courses (39 hours):

CHEM 111+L	General Chemistry I+Lab	4+1
CHEM 112+L	General Chemistry II+Lab	4+1
CHEM 113+L	General Chemistry III+Lab	4+1
CHEM 371+L	Organic Chemistry I+Lab	3+1
CHEM 372+L	Organic Chemistry II+Lab	3+1
CHEM 373+L	Organic Chemistry III+Lab	3+1
PHYS 111+12+13	General Physics I,II,III	4+4+4

### Pre-medical and pre-dental students:

The B.S. degree curriculum, including recommended cognates, exceeds all undergraduate science requirements for pre-medical and pre-dental students applying to Loma Linda University and many other schools.

*This major fulfills the general education requirements in Science (section V).*

## Student Learning Outcomes

### Students will:

- Identify and explain general biological principles.
- Describe and employ the scientific process and techniques, especially as these apply to the biological sciences.
- Successfully communicate in both oral and written scientific format and be information literate.
- Describe and evaluate the historical and current issues relating to the interface of faith and science.

## Occupational Information

### What can I do with this major?

The Biology major is a strong and logical background for many healthcare professions. Our core requirements provide a solid foundation in the key areas of life science. Our elective courses allow students to strengthen those areas of greatest interest to them, and even create an emphasis which is custom designed for each individual's professional objectives and career goals.

Graduates with a B.S. in Biology are prepared to:

- 1) Enter professional schools in medicine, dentistry, veterinary medicine, optometry, pharmacy and physical therapy.
- 2) Enter graduate schools to pursue a masters or doctoral degree in one of the specialized areas of biology such as anatomy, botany, ecology, microbiology, zoology, or physiology, and in the field of Public Health.  
A Ph.D. degree is normally required to do research in the life sciences, and for teaching at the university and senior college level. A masters degree is sufficient for teaching science at the secondary level and in some community colleges. Public Health positions are available at the masters and Ph.D. levels.
- 3) Seek employment in entry-level jobs in the following areas: Biotechnology, biomedical, wildlife conservation and management, and field biology.

### Additional Education Required?

Additional preparation in graduate or professional school is required for a majority of career opportunities.

### Job Outlook

Health care jobs such as medicine, dentistry, and other medical professions continue to show a high demand. Positions related to the natural sciences depend on the specific occupation. For details, visit <http://www.bls.gov/ooh/life-physical-and-social-science/home.htm>.

### General Education Requirements

To view general education requirements for this major, please refer to page A-01, Summary of General Education Requirements: B.S. Degree.

### How to Construct Your Own Program

1. Consult with your academic advisor.
2. Consider your aptitudes, interests, and available courses.
3. Schedule major courses and cognates first.
4. Fill the rest of your schedule with G.E. requirements.
5. For the freshman year include English I and II and Religion courses. Also include Basic Algebra I+II unless waived by previous work.

### What the Degree Includes

A total of 192 quarter hours including:

1. A minimum of 60 upper division hours.
2. General Education requirements.
3. Major requirements.
4. Minimum 2.0 GPA, overall and major.

### For More Information

Visit our website: [www.puc.edu/academics/departments/biology](http://www.puc.edu/academics/departments/biology)

email: [biology@puc.edu](mailto:biology@puc.edu)

### Sample Four-Year Program

This sample curriculum shows you how a program may be constructed, emphasizing the science components. Your program may differ, but be sure to consult your advisor.

<b>First Year</b>	<b>F</b>	<b>W</b>	<b>S</b>
Biological Foundations I,II,III	5	5	5
Introductory Chemistry*	4	-	-
Religion Courses	3	3	-
College English I,II	-	4	4
Exercise Science Activity Course	-	1	-
General Education/Electives	4	4	8
	16	17	17
<b>Second Year</b>	<b>F</b>	<b>W</b>	<b>S</b>
General Chemistry I,II,III**	5	5	5
Introduction to Statistics	4	-	-
Ecology	4	-	-
Introduction to Research Methods I,II	2	2	-
Biology Electives***	-	4	5
General Education/Electives	2	6	7
	17	17	17
<b>Third Year</b>	<b>F</b>	<b>W</b>	<b>S</b>
General Physics I,II,III****	4	4	4
Organic Chemistry	4	4	4
Systems Physiology	5	-	-
Cell & Molecular Biology	-	4	-
Genetics	-	-	4
Science Seminar	-	.5	-
General Education/Electives	4	4	4
	17	16.5	16
<b>Fourth Year</b>	<b>F</b>	<b>W</b>	<b>S</b>
Biology Seminar	-	.5	-
Philosophy of Origins	-	3	-
Biology Electives***	4	4	4
Senior Assessment Seminar	-	-	.2
General Education/Electives	12	9	12
	16	16.5	16.2

\* Needed only if High School chemistry is weak.

\*\* General Chemistry may be taken in year one by students who are well prepared, highly motivated, and very disciplined. It may also be taken in the summer between the first and second year.

\*\*\* Biology Electives, 21 hours - see the front of this sheet for the list of options.

\*\*\*\* May be taken in the summer between 2nd and 3rd year.